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### THE EFFECTS OF DAYLIGHT FLUCTUATION AND ILLUMINANCE LEVEL IN OFFICE BUILDING

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#### *Abstract*

Daylighting is concerned with the lead causes of energy consumption where greenest building assessments is based on the daylight quality. Most of the measurements of daylight performance and quality are based on illuminances in office spaces. Daylight and illuminance should not be neglected in adapting the appropriate brightness as this is an important criterion in rating building performance. Impact of illuminance level in office buildings is not critically examined to support the visual performance of occupants. The objectives of this study are to investigate the level of illuminance and fluctuations of daylight on occupancy for the office spaces and to identify whether the minimum level of illuminance affect occupants' visual comfort in optimum performance zone. The research methodology applied in this work is divided into three parts that are survey on the occupant's perception, the visual test and simulation. The results demonstrate the density of occupancy of 50% and below in a space of 300 lux achieved the daylight performance with R squared of 0.8385. While the ideal WWR for single office space should be within below 40% in achieving the optimum performance zone with 2700 mm distance from window. The new approach on daylighting performance and quality analysis that is based on occupant density is to define the direction of designing a space with acceptable illuminance level and improving the daylight metric for performance zone.

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**Keywords:** Occupant density, daylight fluctuation, illuminance level, performance zone.



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